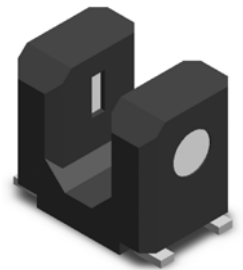


Technical Data Sheet Opto Interrupter ITR1205ST11A/TR

Features

- Gap : 1.1 mm
- Slit : 0.3 mm
- Compact SMD Package
- Pb/Halogens free
- RoHS compliant



Description

- ITR1205ST11A/TR is an ultra small outline photo-interrupter, integrating both infrared emitter and silicon phototransistor detector with plastic molding housing.

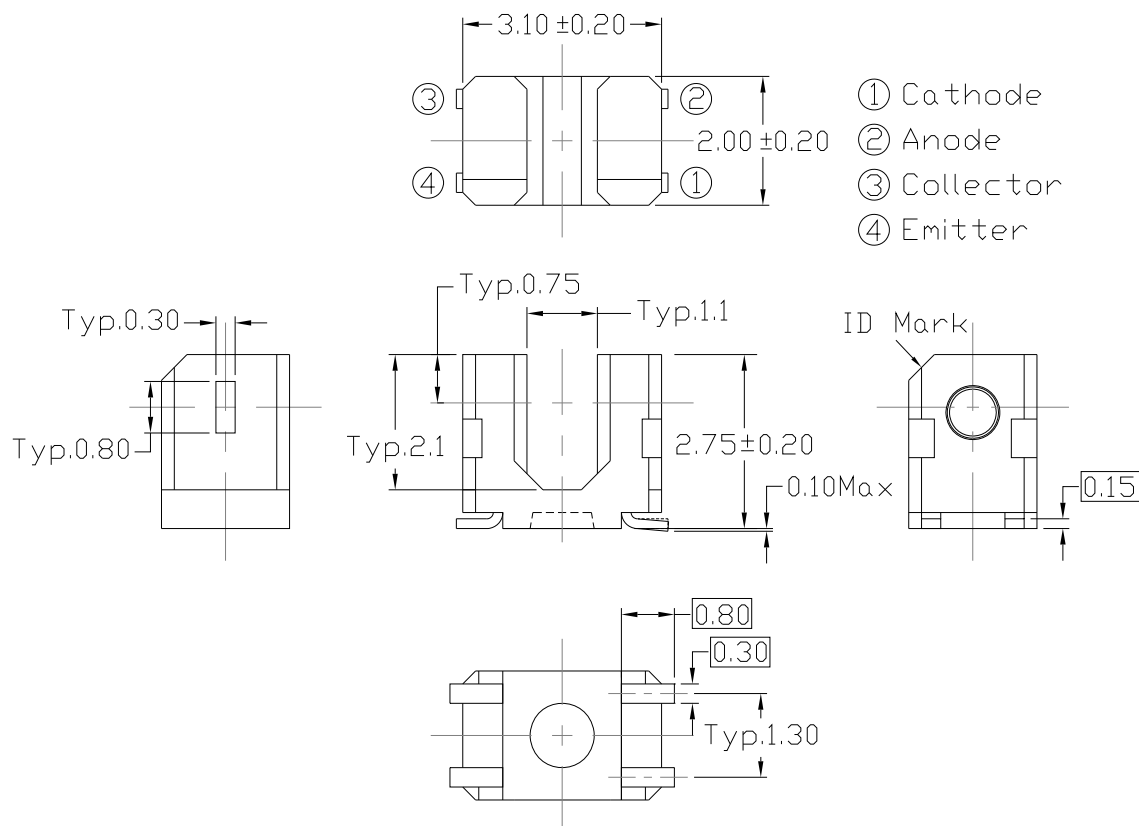
Applications

- Printer
- Digital Camera
- Optical switch

Device Selection Guide

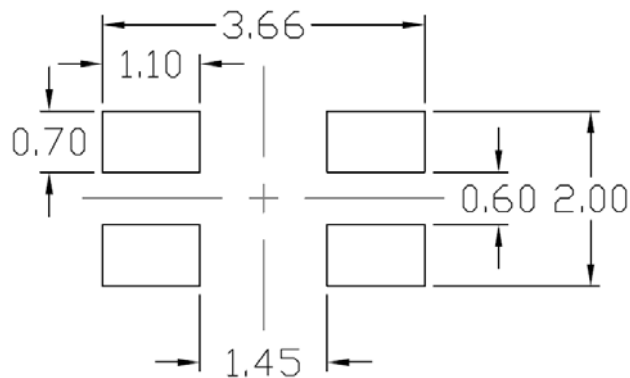
Device No.	Chip Material
IR	AlGaAs
PT	Silicon

Package Dimension



- Notes:** 1. All dimensions are in millimeters
2. Unmarked tolerances: ±0.1mm

Footprint Drawing



Absolute Maximum Ratings (Ta=25°C)

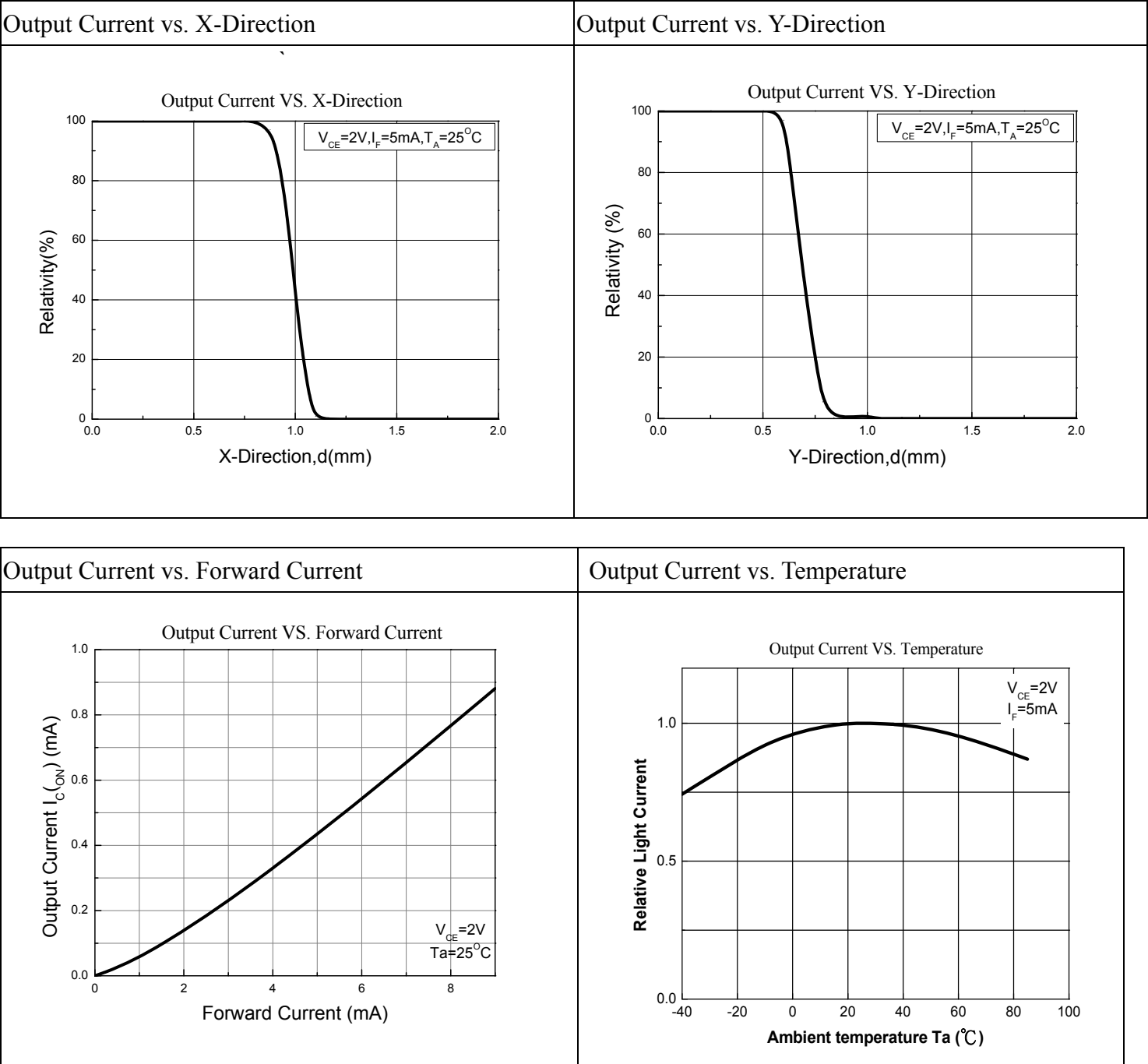
Parameter		Symbol	Rating	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current * ¹	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	B V _{CEO}	35	V
	Emitter-Collector Voltage	B V _{ECO}	6	V
Operating Temperature		T _{opr}	-40~+85	°C
Storage Temperature		T _{stg}	-40~+100	°C
Lead Soldering Temperature* ²		T _{sol}	260	°C

* 1. Pulse width $t_w = 100\mu s$, Period $T = 10ms$ * 2 $t \leq 5sec$.

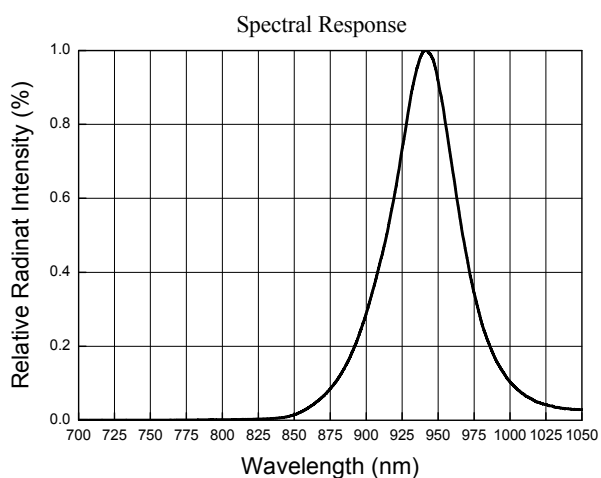
Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V _F	---	1.2	1.4	V	I _F =20mA
	Reverse Current	I _R	---	---	10	μA	V _R =6V
	Peak Wavelength	λ _p	---	940	---	nm	I _F =20mA
Output	Dark Current	I _{CEO}	---	---	0.1	μA	V _{CE} =20V
	C-E Saturation voltage	V _{CE(sat)}	---	---	0.4	V	I _c =0.05mA I _F =10mA
Transfer Characteristics	Collector Current	I _{C(ON)}	150	---	1200	μA	V _{CE} =2V, I _F =5mA
	Rise time	t _r	---	9	---	μs	V _{CE} =5V I _C =1mA R _L =1KΩ
	Fall time	t _f	---	8	---	μs	

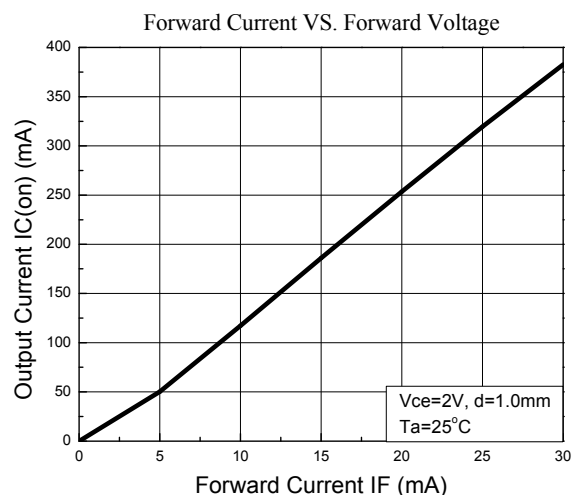
Typical Electrical/Optical/Characteristics Curves



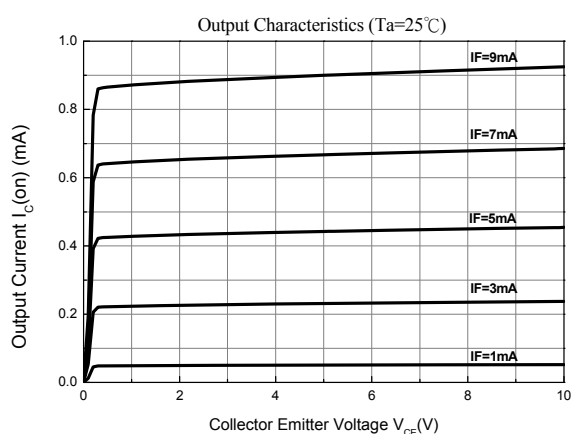
Spectral Response



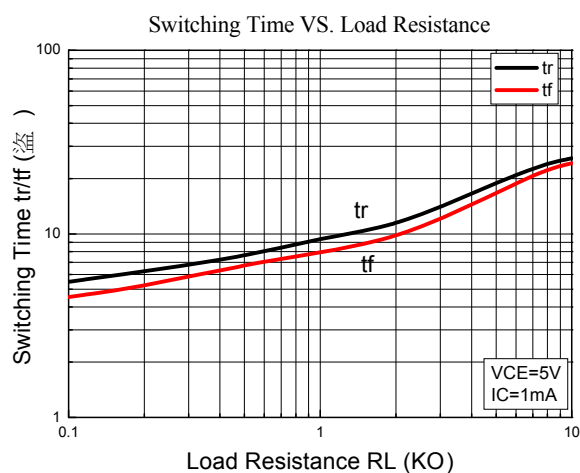
Forward Current vs. Forward Voltage



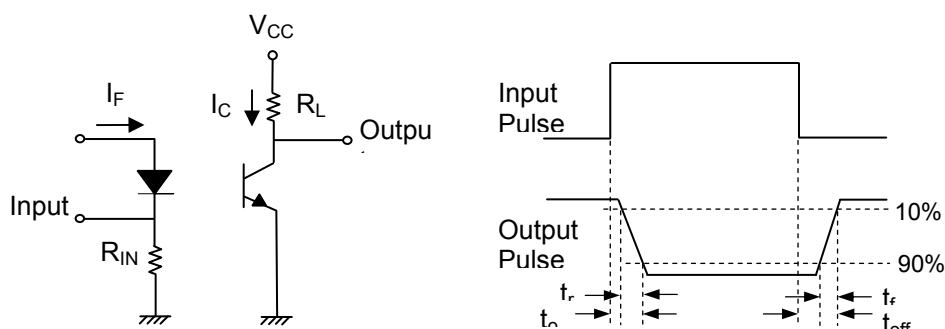
Collector Emitter Voltage vs. Output Current



Switching Time vs. Load Resistance



Measuring Circuit For Response Time



Technical drawing of a 12.00mm diameter stainless steel tube. The drawing includes a side view and a cross-sectional view. The side view shows a tube with a total length of 12.00 ± 0.3 mm. The cross-sectional view shows a tube with an outer diameter of 12.00 ± 0.3 mm and a wall thickness of 0.30 ± 0.05 mm. The tube features a series of rectangular slots along its length, with a center-to-center distance of 8.00 ± 0.10 mm. The slots have a width of 2.30 ± 0.10 mm and a depth of 3.70 ± 0.10 mm. The tube also has a series of circular holes along its length, with a center-to-center distance of 2.00 ± 0.10 mm. The holes have a diameter of 1.50 ± 0.0 mm. The tube is labeled with 'ID Mark' and 'R0.30'.

Progressive Direction

Label

2.0 ± 0.5

$\phi 13.0 \pm 0.5$

$\phi 33.0 \pm 2.0 / -0.0$

$\phi 101.0 \pm 1.0$

$13.0 \pm 3.0 / -0.0$

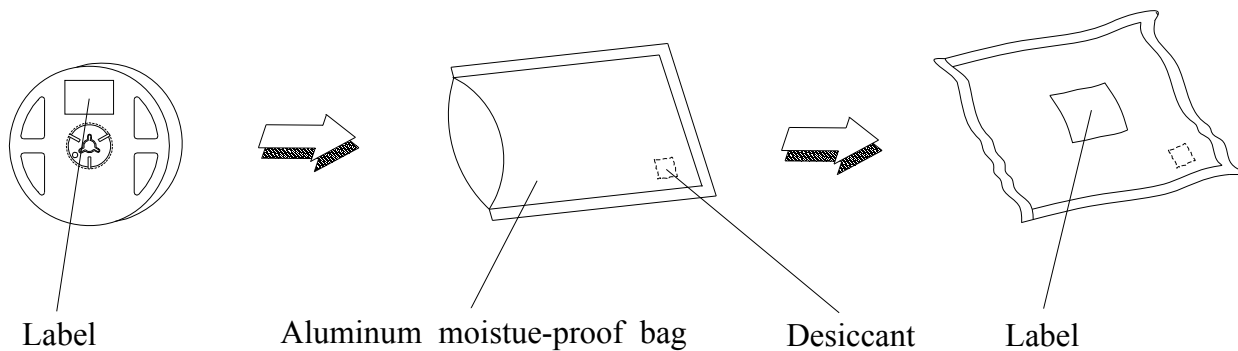
17.4 ± 1.0

6

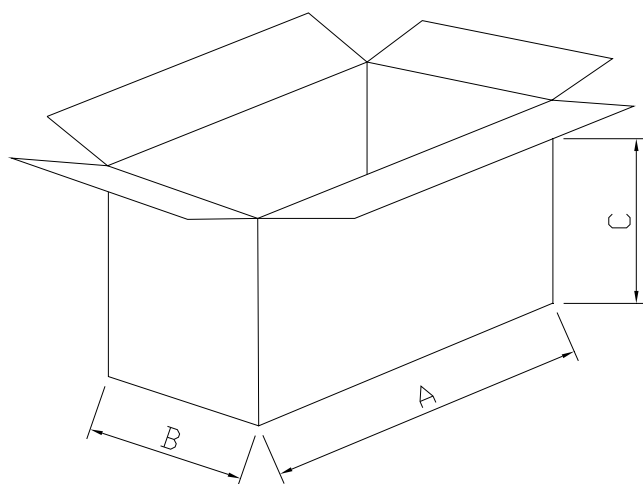
Packing Quantity Specification

1. 3000pcs / 1 Reel
2. 13 Reels (39Kpcs) / 1 Carton

Packing Procedure



Outer Carton Dimension : 409mm(A)*245mm(B)*360mm(C)



Precautions For Use

The following are general recommendations for moisture sensitive level (MSL) 3 storage and use :

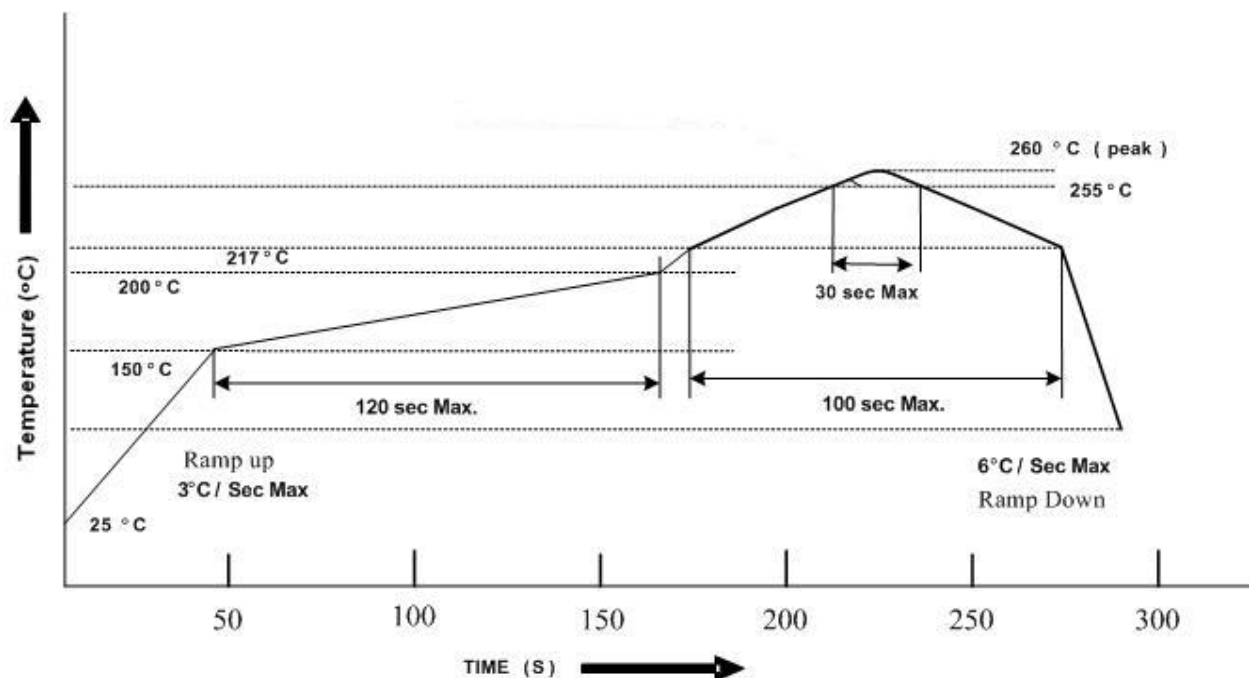
1. Storage

- 1.1 Do not open moisture proof bag before the products are ready to use.
- 1.2 Before opening the package, the device should be kept at 30°C or less and 90%RH or less.
- 1.3 The device should be used within a year.
- 1.4 After opening the package, the device should be kept at 30°C or less and 70%RH or less.
- 1.5 The device should be used within 168 hours (7 days) after opening the package.
- 1.6 If the moisture absorbent material (silica gel) has faded away or the device have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

2. Soldering Condition

2.1 Pb-free solder temperature profile



- 2.2 Reflow soldering should not be done more than two times.
- 2.3 When soldering, do not put stress on the device during heating.
- 2.4 After soldering, do not warp the circuit board.

3. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

4. Repairing

Repair should not be done after the device have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the device will or will not be damaged by repairing.

Label Form Specification

The diagram shows a rectangular label form with the following elements:

- Top left: A circle containing the text "Pb".
- Top center: A rectangular box containing the text "EVERLIGHT".
- Top right: An empty circle.
- Below "Pb": The text "CPN : XXXXXXXXXXXXXXXX" followed by a barcode.
- Below the first barcode: The text "P/N : XXXXXXXXXXXXXXXX" followed by a barcode.
- Below the second barcode: The text "QTY : XXX" followed by a barcode.
- Below the third barcode: The text "LOT NO : XXXXXXXXXXXX" followed by a barcode.
- Below the fourth barcode: The text "Reference : XXXXXXXX" followed by a barcode.
- On the right side, below the "EVERLIGHT" box: A rectangular box containing the text "RoHS".
- Below the "RoHS" box: The text "CAT : XXX", "HUE : XXX", and "REF : XXX" arranged vertically.

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.